stories of life in Ceylon which he illustrated with images, implements and natural objects collected during his stay in "heathen lands."

His death occurred on the third day of September after several months of failing health, in South Royalston, which had been his home for the past eighteen years. The photograph here reproduced was taken some twenty years ago.

E. J. Winslow.

Is Pellaea glabella Mett. a Distinct Species?[1]

FERMEN L. PICKETT

In an earlier number of the Journal (4: 97–100, Jy-S, 1914) the writer called attention to two forms of the Cliff Brake found growing together on the limestone cliffs of southern Indiana, both of which are locally called *Pellaea atropurpurea* (L.) Link, but which differ so widely that they seem certainly to be distinct varieties or even distinct species.

Through the kindness of Mr. C. A. Weatherby, specimens of both forms were on display at the Philadelphia meeting. Later the broad-leaf specimens were compared with authentic specimens of *P. atropurpurea* var. *Bushii* (collected at Monteer, Mo., by B. F. Bush, Oct. 24, 1901) and reported as identical with that variety. Mr. Weatherby stated that Mr. Bush evidently thought the variety *Bushii* the same as *P. glabella* in as much as his later labels bear the latter name.

In December, 1915, the writer received from Mr. F. C. Greene specimens of *P. glabella* collected Oct. 3, 1915, North Terrace, Kansas City, Mo., which are in every way identical with the Indiana specimens. Later examination of specimens in the Washington State College Herbarium has shown specimens of *P. glabella*

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[1] Contribution from the Bot. Dept., Washington State College.

collected in Wisconsin, by E. P. Sheldon at Osceola and by C. A. Davis at Argyle; and specimens of both forms collected near Peru, Nebraska, by R. Kent Beattie. In all these specimens the differences noted in the writer's earlier article are quite evident; but the sheets all bear the name of *P. atropurpurea*.

When the earlier report was made, culture experiments were in progress to determine whether or not specific differences would appear in the gametophyte generations of the two forms. Shortly afterward the writer came to the State College, leaving most of the older culture material at Indiana University. At the present time it seems that there will not soon be opportunity to carry on the culture work to any considerable extent, and so, it may be advisable to report the findings to date.

The prothallia of both forms are very irregular in form, and no clear distinction has been made on that basis. The cells of the prothallia of *P. glabella* are slightly the larger, enough larger so that the plants could usually be distinguished readily when examined microscopically. As reported by W. N. Steil (Bot. Gaz. **52:** 400–401, 1911) *P. atropurpurea* is very largely or entirely apogamous. The same condition holds in the case of *P. glabella* as found by the writer. A full account of the conditions in this form will appear at an early date.

The cultures left at Indiana University have been cared for by Dr. D. M. Mottier, through whose kindness I am able to report that the apogamous sporophytes of *P. glabella are strictly true to type*. The difference is quite noticeable at early stages and there is not a gradation into the *P. atropurpurea* characteristics. This gives rise to an interesting question. In the case of these two apogamous ferns, showing well marked differences of specific rank, is there any likelihood of intergradation or any possible question as to the distinctness

of species? Certainly the two forms cannot be considered the same and the names synonymous as given in the last edition of the Illustrated Flora (I: p. 33.) The writer has found normal variation in both *P. atropurpurea* and *P. glabella*, but has not as yet found the complete breaking down of one or more of the points of difference such as would be expected in intermediate forms. On the other hand, the two forms are found growing side by side, under exactly similar conditions, yet distinct and easily recognized. These facts, together with their character of apogamy and consequent impossibility of interbreeding, certainly give to the two forms the value of distinct varieties; and in the writer's mind, the differences are sufficient to class the forms as distinct species, *Pellaea atropurpurea* (L.) Link and *Pellaea glabella* Mettenius.

To the former notes should be added for the sake of distribution records that *P. glabella* is the more common form found on the limestone cliffs of Monroe County, Indiana.

Through the kindness of Mr. Weatherby the writer has been able to secure the original description of *P. glabella*, and it is given here for the benefit of others who may not have access to the files of *Linnaea*.

Rhizoma abbreviatum paleis membranaceis, rufescentibus, anguste taeniaeformibus, linearibus, acuminatis densissime vestitum; folia chartacea, infra pallide viridia, glaberrima; petiolus 1–3″ longus cum rhachi rufo-fuscus, nitidus, teres, glaberrimus; lamina 2-5″ longa, elongato-oblonga, pinnata s. basi bipinnata; pinnae suboppositae, patentissimae, elongato-oblongae, obtusae, inferiores distantes bi-tripartitae s. pinnulatae; pinnulae 1–2 jugae, sessiles, oblongae, terminales elongatae; nervi immersi, rarius manifesti; sori margine revoluto anguste velati.

America borealis Kimmswick prope St. Louis, Visconsin, Columbia anglica (Lyall), Rocky Mountains.

Adhuc cum *P. atropurpurea* confusa, a quo petiolo rhachique glaberrimis, paleisque latioribus, longioribus brevius subulatis distinguitur. (Linnaea **36**: 87. 1869).

Pullman, Wash.